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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,609	07/30/2003	Declan P. O'Connor	06310 USA	8677

23543 7590 09/30/2004

AIR PRODUCTS AND CHEMICALS, INC.  
PATENT DEPARTMENT  
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EXAMINER

DOERRLER, WILLIAM CHARLES

ART UNIT PAPER NUMBER

3744

DATE MAILED: 09/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/630,609	Applicant(s) O'CONNOR ET AL.	
	Examiner William C Doerrler	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7-30-2003</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Priority*

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Great Britain on 8-20-2002. It is noted, however, that applicant has not filed a certified copy of the British application as required by 35 U.S.C. 119(b).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4,8 and 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Jahnke.

Jahnke shows a cryogenic separation system which removed liquid oxygen from air and stores it in an inventory 8, when not needed to pass through vaporizer 3 which cools the incoming stream. Column 4 lines 33-47 discusses the use during offpeak hours to store liquid oxygen.

Claims 1-4,8,9 and 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Bernard et al '044.

Bernard et al '044 show a distillation column 5 for separating air to produce liquid oxygen 10 which is stored until needed, when it is vaporized in heat exchanger 3 to cool the incoming stream. Tank 15 represents a tank for vaporized oxygen to provide gaseous oxygen while the vaporizer is put back online.

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Claims 1-4,8 and 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Ekins et al.

Ekins et al shows a distillation column 13 which produces liquid oxygen from an air stream. A portion of the liquid oxygen is stored in tank 20 until demand exceeds production, at which point the liquid is vaporized to cool a process stream.

Claims 1-4,8 and 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Corduan et al.

Corduan et al disclose a distillation system (4-6) for producing a liquid oxygen product which is stored in tank 17. According to the abstract, "During an operating disturbance, at least a portion of the liquid product is removed from the tank, evaporated and used for an emergency supply." Heat exchanger 2 cools the incoming stream using the oxygen which is being evaporated.

Claims 1-4,8, and 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Higginbotham et al '259.

Higginbotham et al '259 shows a distillation column which separates air to produce liquid oxygen which is stored in tank 86. The liquid oxygen is vaporized in heat exchanger 22 to cool the incoming air stream.

Claims 1-4,8,9 and 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Darredeau '482.

Darredeau shows a distillation column 6,7 which produces and stores liquid oxygen in tank 10. Liquid oxygen is drawn off as need to vaporizer 9 to condense incoming air and to heat exchanger 3 to cool the incoming air.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5-7,10 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Bernard et al or Higginbotham et al '259.

Bernard et al and Higginbotham et al '259 each disclose applicant's basic inventive concept, a distillation column which splits the feed stream into one portion that is cooled and admitted into the column and a second portion which is compressed, cooled and entered into the column with the system having an inventory with means to use liquid from the inventory to provide vapor to a use site and cooling to a system stream, substantially as claimed with the exception of using a plurality of columns with the inventory being used either from the column which has ceased working or from the

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column which has not ceased working. This is seen as obvious duplication of disclosed parts. The use of an inventory from a plurality of columns would have been obvious to an ordinary practitioner in the art to provide an increased level of separated product. In regard to using the inventory of the column which has ceased production or the column which has not ceased production, this is seen as a matter of obvious design choice. If applicant believes that the inventory used makes the claims patentably distinct from each other, a restriction will be proper. The references each show using an inventory from a column, the use of a specific inventory is seen as a matter of design choice to ensure that the system continues to function safely. In regard to claim 10, the supply of fluid just until the system can safely shut down is seen as a matter of obvious design choice in view of the cited references. The references teach a finite supply of inventory. The inventory will obviously last a finite amount of time. Thus it is considered obvious to begin shutdown of the system being supplied by a distillation column which has ceased to operate, if the system will be damaged by a lack of fluid from the distillation column system.

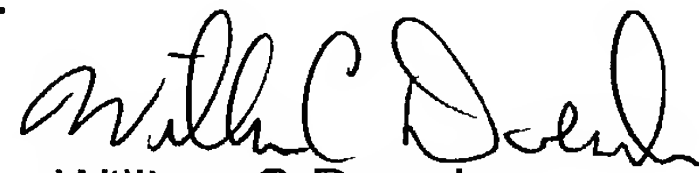
### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. First et al, Guillard et al and Billingham et al show distillation columns with liquid inventories to supply a constant output, even with uneven supply.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C Doerrler whose telephone number is (703) 308-0696. The examiner can normally be reached on Monday-Friday 6:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Denise Esquivel can be reached on (703) 308-2597. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
William C Doerrler  
Primary Examiner  
Art Unit 3744

WCD